Gist of Discussions at the third meeting of the Distribution Utilities Forum, held on 22 February, 2019

A. Inaugural Session

1. **In the Chair: Mr. Gireesh B. Pradhan**, Honorary Chairman, Distribution Utilities Forum.
2. The theme of the discussions in this meeting was **Solar Rooftop: Perspective of Discoms**. List of participants and agenda are annexed.
3. In his welcome address **Mr. Krishan Dhawan**, CEO, Shakti Sustainable Energy Foundation (SSEF), welcomed the participants and briefly outlined the agenda for the day. He also highlighted the discussion paper prepared by TERI on the theme for the discussion at the meeting.
4. In his opening remarks, **Mr. Ajay Shankar**, Distinguished Fellow, TERI, said that India is poised to become a global leader in renewable energy and initiatives such as KUSUM scheme and Phase-II of Grid-Connected Rooftop Solar Programme could help in achieving the said targets. He also praised the forum for having productive discussions on critical topics in the electricity distribution sector.
5. **Mr Pradhan** reiterated that the DUF is platform ***of*** distribution utilities, ***for*** the distribution utilities and ***by*** the distribution utilities, without any interference or guidance from outside. He emphasized that the forum is a place for Discoms, where they can discuss the challenges (implementation and post-implementation) the discoms face in the solar rooftop segment, which were identified as a matter of great concern for the utilities in the previous meeting. He set the context of the meeting by providing some insights into the present scenario of the solar rooftop segment and the way forward to achieve the target of 40 GW through the leading role of the distribution utilities. He stressed on the need for some necessary actions or steps to be taken by each stakeholder to meet the said target. He stressed that there might not be a single viewpoint with regard to development of solar rooftop, but it is important to discuss with the utilities to look an optimum solution.

B. Discussion on Solar Rooftop

Ms. Rashi Singh made the presentation on ***Solar Rooftop: Perspective of Discoms***, outlining the pre and post implementation challenges faced by Discoms in implementing solar rooftop,

along-with the opportunities. This was followed by presentations from representatives of following Discoms, highlighting their perspective and the initiatives taken for implementing solar rooftop:

a) Madhya Pradesh Madhya Kshetra Vidyut Vitaran Company Ltd. (MPMKVVCL)
b) Dakshin Gujarat Vij Company Ltd. (DGVCL)
c) West Bengal State Electricity Distribution Company Ltd. (WBSEDCL)
d) CESC Ltd.
e) BSES Rajdhani Power Ltd. (BRPL)

The remaining participating Discoms also voiced their opinions on implementing solar rooftop.

The following points emerged from the discussions:

1. It is important to have the Discoms as the Nodal Agency for the implementation of the grid-connected solar rooftop programme.
    1.1. In the past, similar approach has been successfully tried-out by MNRE through Discoms such as MPMKVVCL.
2. The issue of financial loss faced by the Discoms due to implementation of solar rooftop was raised by most of the utilities.
    2.1. MPMKVVCL mentioned that implementation of solar rooftop is a revenue-loss proposition for a power surplus state like MP as they are able to meet their RPO from available solar sources.
    2.2. In case of Kerala, the solar tariff is greater than their Average Power Purchase Cost (APPC), thus making it less viable for them to implement solar rooftop.
    2.3. In case of Manipur, with the current prevalence of pre-paid meters, implementing solar rooftop leads to revenue loss since it reduces effective electricity sale.
    2.4. BRPL (a private Discom in NCT of Delhi) said that there need be no concern regarding revenue loss as long as the AT&C losses in the system are low.
3. The difficulty in capturing generation data from rooftop solar systems emerged as a major challenge, as it causes hindrance in planning operations and improving generation forecast – a vital operational requirement.
4. Because of the anti-islanding feature in grid-tied solar PV inverters, the prosumers are not able to consume their own generation in the event of a day-time power-cut and it is also difficult to monitor generation in such conditions. It was noted that hybrid solar PV

inverters are available to mitigate this problem; however, they are acutely expensive and less efficient than the grid-connected inverters. The Discoms acknowledged that the grid-tied solar PV inverters are best for maintaining the safety and security of the network. Ability to change internal circuit configuration to allow the inverter operation during outage of electricity supply from the utility, while maintaining local PV generation-load balance was also discussed in this context.

5. On the way forward, business models and new approved schemes were discussed:

5.1. <u>Business Models</u>

i) Hybrid models/ Utility-based business models were presented by **Mr. Abhishek Ranjan**, BRPL and **Er. Alekhya Datta**, TERI.

ii) **Mr. Gireesh Pradhan** remarked that it would be good if the Discoms could quantify the monetary benefits due to implementation of solar rooftop, such as reduction in network losses and congestion. These benefits could be passed to all consumers, thus promoting them to implement solar rooftop as well.

iii) Involvement of the Discoms could help in providing better security of payments for the developer.

iv) With increasing penetration of solar rooftop under net-metering arrangement, Discoms suggested that the fixed charges being recovered from the retail consumers could be increased to reduce their financial loss.

v) The Discoms must play an 'anchoring role' in rooftop solar implementation. Discoms can play the role of aggregator to avail the benefits of the economy of scale.

vi) Some Discoms said that making the implementation of solar rooftop mandatory for the Discoms (say through MoP) could help them focus on it while incentives can help cover the administrative costs.

5.2. <u>Phase-II of Grid Connected Rooftop Solar Programme</u>

i) Phase-II of Grid Connected Rooftop Solar Programme, recently approved by the Cabinet was also discussed. It was noted that Discoms have been made the nodal points for the implementation of the rooftop solar programme, however there is lack of clarity in respect to a few issues. Following points were made by the Discoms:

a) Expected loss of revenue and increased administrative cost is higher than the incentives proposed in the scheme.

b) Government has approved a one-time incentive for the achievement of targets, whereas the revenue loss from the rooftop capacity addition will be felt over several years.

ii) The forum was of the view that post roll out of the scheme by MNRE, observations could be made.

5.3. <u>KUSUM Scheme</u>

KUSUM scheme, recently approved by the Cabinet, was also discussed and the Discoms were of the view that appropriate observations can be made by them once the scheme is detailed by MNRE.

6. In the post-lunch session, the forum meeting continued with two break-out sessions:

I. Net-Metering vs. Gross-Metering

- Context setting by **Er. Alekhya Datta**
- Moderated by **Mr. Gireesh Pradhan**

II. Rooftop Solar Implementation: Discoms' Viewpoints

- Context setting by **Ms. Disha Agarwal**
- Moderated by **Mr. Ajay Shankar**

Discoms representatives were divided into two groups for the break-out sessions of one hour each. Each group presented key takeaways from the discussions to the larger group on both topics

6.1. **Er. Alekhya Datta** highlighted the key points of discussion on the ***Net-Metering vs. Gross-Metering*** break-out session:

i) Gross-metering arrangement is the preferred model for well-developed solar rooftop markets.

Net-metering arrangement promotes self-consumption. It provides more benefit to the higher tariff slab consumers as compared to others. Hence in the development stages, the Discoms prefer Gross- metering or Feed-in-Tariffs.

ii) Levelized tariff for solar rooftop can help promote both arrangements.

A suitable Feed-In Tariff (FiT) can help in recovering the upfront cost for the system and help promote gross-metering arrangement by Discoms.

iii) Both the regimes, net-metering and gross-metering, can co-exist in a Discom. However, with diversity across Discoms, mainly in terms of consumer mix, Discoms may choose the appropriate mechanism for each consumer group.

There is a need for revisiting the existing regulations in the states in order to facilitate the co-existence of net metering and FiT regimes.

iv) Administrative challenges are present in both the arrangements, but they are comparatively less in gross-metering arrangement, as compared to net-metering arrangement, especially in case of generation monitoring and billing.

6.2. **Ms. Disha Agarwal** highlighted the key points of discussion on the ***Rooftop Solar Implementation: Discoms' Viewpoint*** break-out session:

i) There is need for redesigning retail tariffs (minimizing cross-subsidies and making retail tariffs reflective of the true cost of supply), to provide a level-playing field to rooftop solar solutions and aiding consumers to shift to RTPV based on economic considerations, ultimately benefitting the utility as well. Once we start to see high influx of RTPV, the discom will need its other capacity to behave in a manner that helps them maintain grid stability at all times. And therefore, the kind of contracting that happens with conventional power plants needs to change. Discoms suggested options like seasonal PPAs, and coal PPAs based on only variable costs (not fixed + variable costs).

ii) All the additional expenses and revenue loss due to implementation of solar rooftop need to be passed on to consumers as a component – "Renewable Cost".

iii) Discoms were of the opinion that domestic consumers from whom the recovery is low, need to be targeted for rooftop solar installation which will reduce the losses, cross subsidy charges and government subsidies as well.

iv) Discoms suggested implementing solar rooftop on a pilot basis, to assess risk by consolidating low paying consumers' rooftop capacity and inviting bids on their behalf using the services of RESCOs and share tariff/ costs as per regulatory/ approved mechanisms. Discoms also suggested a pilot-based approach for rolling out rooftop solar programs. Such pilots could

be initiated for small towns based on demand aggregation of low paying consumers by discoms and agreements between developers and discoms. A bidding process can be followed to identify RESCOs that offer a FiT lower than SERC determined FiT.

v) In the gross-metering model, Feed-in Tariff (FiT) should be decided by the respective SERCs, considering it can be a win-win situation for Discoms as well as consumers.

vi) Exclusive contracting mechanism needs to be developed to procure power during peak time, especially for evening peaks (non-RE hours).

vii) Increased renewable energy penetration would have an implications in terms of Deviation Settlement Mechanism (DSM) penalties, to be borne by the Discoms.

viii) Discoms expressed the need for capacity building in rooftop solar installations and metering and billing procedures.

7. **Mr. A.K. Saxena,** TERI, mentioned that the regulations in various states provide for varying degree of capping on solar rooftop as a percentage of capacity of distribution transformer, connected load, etc., and the Discoms also have apprehensions with regard to the impact of increasing penetration of solar rooftop on their network. He added that power system studies are necessary to arrive at appropriate conclusions.
8. **Mr. K. Ramanathan**, TERI, gave a brief account of the studies being carried out by TERI on the technical impact of solar rooftop on the distribution network, with the help of MacArthur Foundation for three distribution utilities.

C. Discussion on framework for the Cost of Supply Study

1. A brief presentation covering the objective, approach & methodology, etc., was made by **Mr. S Narayan Kumar** on ***Cost of Supply***, the theme of the next DUF meeting.
2. **Mr. Pradhan** requested the utilities for their continued support and cooperation to carry out the next study by providing information and inputs for developing base paper and subsequent work.

D. Website for DUF

1. A beta version of the DUF website was also presented..
2. It was agreed by the forum members that the website would be accessible to the general public.
3. All the relevant documents for the Forum will be uploaded on the website.

4. Discoms were requested to provide their comments and suggestions for developing and populating the website.

F. Conclusion

The third meeting of Distribution Utilities Forum (DUF) was concluded with a Vote of Thanks by **Mr. Pradhan**.

THIRD MEETING OF DISTRIBUTION UTILITIES FORUM HELD ON 22ND FEBRUARY 2019 AT HOTEL CLARIDGES, NEW DELHI

List of Participants from Discoms

S.No	Name	Designation	Organization
1	Mr. Gireesh B. Pradhan	Honorary Chairman	Distribution Utilities Forum (DUF)
2	Mr. Chanchal Biswas	Superintending Engineer (SE)	West Bengal State Electricity Distribution Company Ltd. (WBSEDCL)
3	Mr. Somanjan Ponda	Superintending Engineer (SE)	West Bengal State Electricity Distribution Company Ltd. (WBSEDCL)
4	Mr. Rajib Das	General Manager	CESC Ltd.
5	Mr. Sunil K Sharma	Senior Manager (Corp. Affairs)	BSES Yamuna Power Ltd. (BYPL)
6	Mr. Vineet Sikka	Senior Vice President and Head Business	BSES Rajdhani Power Ltd. (BRPL)
7	Mr. Abhishek Ranjan	VP and Head of Renewables	BSES Rajdhani Power Ltd. (BRPL)
8	Mr. Naveen Nagpal	General Manager (Renewables)	BSES Rajdhani Power Ltd. (BRPL)
9	Mr. Pankaj Kargeti	Manager (Renewables)	BSES Rajdhani Power Ltd. (BRPL)
10	Mr. Brijesh Jha	ASVP (Business Excellence Team)	BSES Rajdhani Power Ltd. (BRPL)

11	Ms. Sugandhita Wadhera	Graduate Engineer (Renewables)	BSES Rajdhani Power Ltd. (BRPL)
12	Dr. Ganesh Das	Head (Strategy, Business Excellence)	Tata Power Delhi Distribution Ltd. (TPDDL)
13	Mr. Sugata Mukherjee	Head of Group (Solar and New Business)	Tata Power Delhi Distribution Ltd. (TPDDL)
14	Mr. Baljeet Singh Khanooja	General Manager (Commercial)	Madhya Pradesh Madhya Kshetra Vidyut Vitaran Company Ltd. (MPMKVVCL)
15	Mr. Jeewanlal Tejraj	Manager (Commercial)	Madhya Pradesh Madhya Kshetra Vidyut Vitaran Company Ltd. (MPMKVVCL)
16	Mr. S.H. Patel	Deputy Engineer (Solar)	Uttar Gujarat Vij Company Ltd. (UGVCL)
17	Mr. J.S. Kedariya	Superintending Engineer (Commercial)	Dakshin Gujarat Vij Company Ltd. (DGVCL)
18	Mr. B.C Godhani	Executive Engineer	Dakshin Gujarat Vij Company Ltd. (DGVCL)
19	Er. Ranjeet Singh	Addl. Superintending Engineer	Punjab State Power Corporation (PSPCL)
20	Er. Sandeep Singh	Dy. Chief Engineer/IPC	Punjab State Power Corporation (PSPCL)
21	Mr. Abdul Rahim	Executive Engineer	Cochin Port Trust

22	Mr. Amit Prakash	AVP & Head – Commercial	India Power Corporation Ltd. (IPCL)
23	Mr. Usham Rocky Singh	Manager (HT Commercial)	Manipur State Power Distribution Company Ltd. (MSPDCL)
24	Mr. Lenka Prasad	General Manager	Odisha Power Transmission Corporation Limited (OPTCL)
25	Mr. Prabhat Kumar	Executive Engineer	Odisha Power Transmission Corporation Limited (OPTCL)
26	Mr. Madan Pal	Advisor	New Delhi Municipal Corporation (NDMC)
27	Ms. K Rajeshwari	AGM- DSM	Bangalore Electricity Supply Company (BESCOM)

List of Participants from Shakti Sustainable Energy Foundation (SSEF) and The Energy and Resources Institute (TERI)

S.NO.	NAME	DESIGNATION	ORGANIZATION
1	Mr. Krishan Dhawan	CEO	SSEF
2	Mr. Vivek Sen	Program Manager, Power	SSEF
3	Ms. Gayatri Ramanathan	Program Manager, Projects	SSEF
4	Ms. Disha Agarwal	Program Officer, RE	SSEF
5	Ms. Vrinda Sarda	Senior Programme Associate	SSEF
6	Ms. Elisha George	Programme Associate	SSEF
7	Mr. Ajay Shankar	Distinguished Fellow	TERI
8	Mr. K. Ramanathan	Distinguished Fellow	TERI
9	Mr. Girish Sethi	Senior Director	TERI

10	Mr. Amit Kumar	Senior Fellow and Senior Director	TERI
11	Mr. A.K. Saxena	Director, Electricity and Fuels Division	TERI
12	Mr. Debajit Palit	Senior Fellow & Associate Director	TERI
13	Mr. Shirish S. Garud	Senior Fellow	TERI
14	Mr. Sunil Dhingra	Senior Fellow	TERI
15	Er. Alekhya Datta	Fellow & Area Convenor	TERI
16	Mr. S Narayan Kumar	Fellow	TERI
17	Mr. N. K. Ram	Fellow	TERI
18	Mr. Robin Mazumdar	Consultant	TERI
19	Mr. Balaji Raparthi	Associate Fellow	TERI
20	Dr. Shashank Vyas	Associate Fellow	TERI
21	Ms. Rashi Singh	Research Assistant	TERI
22	Mr. G. Renjith	Research Associate	TERI
23	Mr. Manish Kumar	Project Associate	TERI
24	Mr. Rishabh Sethi	Consultant	TERI
25	Mr. Shubham Thakare	Consultant	TERI